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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

IN RE OPTICAL DISK DRIVE PRODUCTS
ANTITRUST LITIGATION

No. 3:10-md-2143 RS

REVISED MOTION FOR CLASS
CERTIFICATION ON BEHALF OF
INDIRECT PURCHASER CLASS

Date: September 25, 2015
Time: 10:00 a.m.
Courtroom: 3, 17th Floor
Judge: Hon. Richard Seeborg

DATE ACTION FILED: Oct. 27, 2009

This Document Relates to:
ALL INDIRECT PURCHASER ACTIONS

***** FILED UNDER SEAL *****

1 **NOTICE OF MOTION AND MOTION**

2 TO ALL PARTIES AND TO THEIR ATTORNEYS OF RECORD:

3 PLEASE TAKE NOTICE that on September 25, 2015, at 10:00 a.m., or as soon thereafter as
 4 the matter may be heard before the Honorable Judge Richard Seeborg of the United States District
 5 Court for the Northern District of California, San Francisco Division, located at Courtroom 3, 17th
 6 Floor, 450 Golden Gate Avenue, San Francisco, CA 94102, Indirect Purchaser Plaintiffs will and
 7 hereby do move the Court pursuant to Federal Rules of Civil Procedure 23 for an order certifying the
 8 following classes pursuant to Rule 23(b)(3):

9 **Proposed Class:** All persons and entities who, as residents of [the
 10 **United States or State**] and during the period April 2003 to December
 11 2008, purchased new for their own use and not for resale: (i) a
 12 computer with an internal ODD; (ii) a stand-alone ODD designed for
 13 internal use in computers; or (iii) an ODD designed to be attached
 externally to a computer. ODD refers to a DVD-RW, DVD-ROM, or
 COMBO drive manufactured by one or more Defendants or their
 coconspirators. Excluded from the class are any purchases of
 Panasonic-branded computers.

14 **Proposed Subclass:** All persons and entities who during, as residents
 15 of [the **United States or State**] and during the period April 2003 to
 16 December 2008, purchased new for their own use and not for resale
 17 any of the following Dell or HP-branded products: (i) a computer with
 an internal ODD; (ii) a standalone ODD designed for internal use in
 18 computers; or (iii) an ODD designed to be attached externally to a
 computer. ODD refers to a DVD-RW, DVD-ROM, or COMBO drive
 manufactured by one or more Defendants or their co-conspirators.

19 This motion is based on this Notice of Motion and Revised Motion for Class Certification,
 20 the accompanying memorandum of points, their previous papers submitted in support of class
 21 certification and all accompanying declarations and exhibits, the pleadings and papers on file in this
 22 action, oral argument and such other matters as the Court may consider in hearing this motion.
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DEFINITIONS

Short Cite	Long Cite
Class Cert Mot.	Indirect Purchaser Plaintiffs' Notice of Motion and Motion for Class Certification, filed Under Seal, May 29, 2013
Friedman I	Declaration of Jeff D. Friedman in Support of Indirect Purchaser Plaintiffs' Motion for Class Certification, filed Under Seal, May 29, 2013
Flamm I	[Corrected] Declaration of Dr. Kenneth Flamm in Support of Plaintiffs' Motion for Class Certification, filed Under Seal, June 24, 2013
Choice of Law Mem.	Indirect Purchaser Plaintiffs' Choice of Law Analysis in Support of Motion for Class Certification, filed Under Seal, May 29, 2013
Ordoover Decl.	Declaration of Dr. Janusz Ordoover in Support of Defendants' Opposition to Class Certification, filed Under Seal, Oct. 21, 2013
Burtis Decl.	Declaration of Dr. Michelle M. Burtis in Support of Defendants' Opposition to Class Certification, filed Under Seal, Oct. 21, 2013
Class Cert. Reply	Indirect Purchaser Plaintiffs' Reply in Further Support of Motion for Class Certification, filed Under Seal, Feb. 18, 2014
Friedman II	Declaration of Jeff D. Friedman in Further Support of Indirect Purchaser Plaintiffs' Motion for Class Certification, filed Under Seal, Feb. 18, 2014
Flamm II	Declaration of Dr. Kenneth Flamm in Further Support of Indirect Purchaser Plaintiffs' Motion for Class Certification, filed Under Seal, Feb. 18, 2014.
<i>Daubert</i> Opp'n	Indirect Purchaser Plaintiffs' Opposition to Defendants' Motion to Strike the Expert Testimony of Dr. Kenneth Flamm, filed Under Seal, Feb. 18, 2014
Choice of Law Reply	Indirect Purchaser Plaintiffs' Reply in Support of Nationwide Class, filed Under Seal, Feb. 18, 2014
Flamm III	Declaration of Dr. Kenneth Flamm in Support of Indirect Purchaser Plaintiffs' Revised Motion for Class Certification
Order	Order Denying Motions for Class Certification, Oct. 3, 2014, ECF No. 1444.
Ex.	All exhibit references are to the Declaration of Jeff D. Friedman in Support of Revised Motion for Class Certification on Behalf of Indirect Purchaser Class. It is sequentially numbered from the previous Friedman declarations filed in support of the original class certification motion.

TABLE OF CONTENTS

I.	INTRODUCTION	1
A.	Additional Common Evidence of Market Impact	2
B.	Additional Common Evidence of Pass-Through.....	3
II.	PROPOSED REVISED CLASS AND SUBCLASS	5
III.	COMMON ISSUES PREDOMINATE UNDER RULE 23(B)(3)	6
A.	Plaintiffs’ Common Proof of the Conspiracy’s Impact Demonstrates Class Cohesiveness	7
1.	A Further Developed Cointegration Analysis, And a New Granger Causality Test and Analysis of Dell/HP as Baseline Prices in the Industry Demonstrates Impact to All Class Members.....	7
a.	A Further Developed Cointegration Analysis Demonstrates that ODD Prices Charged to HP and Dell ODD Are Economically Linked to ODD Prices Charged to Other Customers in the Market	8
b.	A New Granger Causality Analysis Also Demonstrates that Prices of ODDs Sold to Dell and HP Caused Price Movements in Drives Sold to Other ODD Purchasers	8
c.	Economic and Documentary Evidence Demonstrate that HP and Dell Form the Baseline Prices in this Industry; Thus, Fixing Prices to Dell and HP Impacted the Entire Market.....	9
2.	The Modified Overcharge Regression Model, if Accepted by a Jury, Demonstrates Marketwide Impact.....	12
a.	The Overcharge Model Expressly Tests for Whether the Conspiracy Impacted Only Dell and HP Computers – or Impacted the Entire Market	12
b.	The Modified Overcharge Model Separately Measures Monthly Overcharge for Each ODD Product Type in the Class	13
c.	The Modified Overcharge Model Now Incorporates Cost and Sales Data from Every Defendant Who Produced Useable Data.....	14
d.	The Overcharge Model Controls for Important Market Factors and Is Designed Based on the Specific Structural Market Characteristics that Exist in the Personal Computer Industry.....	14

1	3.	The Continuous Duration and Widespread Nature of the Conspiracy, If Accepted by a Jury, Supports Finding of Classwide Impact	18
2			
3	B.	Common Evidence Is Capable of Demonstrating Conspiratorial Overcharges Were Consistently Passed Through to Consumers	22
4			
5	1.	Common Evidence Can Demonstrate that the Consistent and Significant Declining Costs and Prices in the Personal Computer Market Would Have Been Even Larger and Passed-Through to Consumers in the <i>But-For</i> World	23
6			
7	2.	Additional Economic Analysis Is Capable of Demonstrating that the Overcharge Was Also Passed-on In the Form of Decreased Quality Computers Compared to the <i>But-For</i> World.....	26
8			
9	3.	IPPs Have Tested Pass-Through Rates on Over 273 Million Products, Demonstrating Pass-Through Rates Between 59 and 194 Percent	30
10			
11	IV.	CONCLUSION	33

TABLE OF AUTHORITIES

Page(s)

FEDERAL CASES

<i>Amgen Inc. v. Conn. Ret. Plans and Trust Funds,</i> _U.S._, 133 S. Ct. 1184 (2013)	7
<i>Butler v. Sears, Roebuck and Co.,</i> 727 F.3d 796 (7th Cir. 2013)	33
<i>Chen-Oster v. Goldman, Sachs & Co.,</i> 2015 U.S. Dist. LEXIS 29183 (S.D.N.Y. Mar. 10, 2015)	17
<i>In re Air Cargo Shipping Servs. Antitrust Litig.,</i> 2014 U.S. Dist. LEXIS 180914 (E.D.N.Y. Oct. 15, 2014)	16
<i>In re Amaranth Natural Gas Commodities Litig.,</i> 269 F.R.D. 366 (S.D.N.Y. 2010)	9
<i>In re Deepwater Horizon,</i> 739 F.3d 790 (5th Cir. 2014)	33
<i>In re Dynamic Random Access Memory Antitrust Litig.,</i> 2006 U.S. Dist. LEXIS 39841 (N.D. Cal. June 5, 2006)	6
<i>In re Elec. Books Antitrust Litig.,</i> 2014 U.S. Dist. LEXIS 42537 (S.D.N.Y. Mar. 28, 2014)	14
<i>In re Ethylene Propylene Diene Monomer (EPDM) Antitrust Litig.,</i> 256 F.R.D. 82 (D. Conn. 2009)	14
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<i>In re High-Tech Emp. Antitrust Litig.,</i> 985 F. Supp. 2d 1167 (N.D. Cal. 2013)	7
<i>In re Indus. Diamonds Antitrust Litig.,</i> 167 F.R.D. 374 (S.D.N.Y. 1996)	10
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<i>In re TFT-LCD (Flat Panel) Antitrust Litig.,</i> No. M 07-1827 2012 U.S. Dist. LEXIS 21696 (N.D. Cal. Feb. 21, 2012)	14
<i>In re Urethane Antitrust Litig.,</i> 768 F.3d 1245 (10th Cir. 2014)	10, 22

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<i>Jimenez v. Allstate Ins. Co.</i> , 765 F.3d 1161 (9th Cir. 2014)	33
<i>Leyva v. Medline Indus., Inc.</i> , 716 F.3d 510 (9th Cir. 2013)	33
<i>Yokoyama v. Midland Nat’l Life Ins. Co.</i> , 594 F.3d 1087 (9th Cir. 2010)	6

FEDERAL RULES

Federal Rule of Civil Procedure 23	1, 6, 7
--	---------

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STATEMENT OF ISSUES

The Court found in its October 3, 2014, Order that the proposed indirect purchaser plaintiff class met the requirements of Rule 23(a) – numerosity, commonality, typicality and adequacy. The Court also found that the indirect purchaser class was ascertainable.

The issue presented here is whether, given plaintiffs’ many levels of additional analysis using well-accepted methodologies to demonstrate common impact, the indirect purchaser plaintiffs have met the requirements of Federal Rule of Civil Procedure 23(b)(3) by showing through common evidence that there is sufficient class cohesion in terms of proving antitrust injury and impact such that issues common to the class predominate.

MEMORANDUM OF POINTS AND AUTHORITIES

I. INTRODUCTION

The Court previously denied certification, finding Indirect Purchaser Plaintiffs' ("IPPs") showing of proof common to class members could not sufficiently demonstrate – but instead assumed – that the alleged conspiracy impacted marketwide sales to direct purchasers of ODDs. The Court also indicated skepticism that the overcharge, given its size, would pass-through the distribution chain to the purchase price paid by end consumers (class members). IPPs' renewed motion addresses the Court's findings and provides additional common evidence and analysis that demonstrate the required class cohesion under Rule 23(b)(3) is met here.¹ In addition, IPPs have narrowed the class definition to meet some of the Court's concerns.

IPPs have now presented extraordinary qualitative and quantitative empirical, economic evidence that is capable of answering whether the alleged conspiracy impacted the ODD market and consumer purchasers of computers. IPPs' showing relies on the exact type of evidence long-accepted in antitrust cases to demonstrate market impact and estimate damages. And the econometric methods Dr. Flamm uses in conducting his economic studies, and the underlying economic theory, have been widely recognized and accepted by the most reputable economists as fundamental economic theory and reliable scientific methods to test and demonstrate how an intervention in a market (here the conspiracy) does – or does not – impact an entire market.

The Court correctly observed in its opinion denying certification, there is a meaningful line drawn at class certification between methods and merits. On the class certification side of the line, IPPs must make a convincing showing that their common methods, reliably applied, demonstrate the required class cohesion under Rule 23(b)(3). The other side of the line – whether the Court is convinced by the results of IPPs' common proof – is left to merits. Respectfully, IPPs' renewed motion for class certification powerfully demonstrates reliably applied common evidence that, if accepted by a jury, would entitle IPPs to a class-wide verdict and award of damages.

¹ The Court found that the IPPs had met the requirements of Federal Rule of Civil Procedure 23(a) and that the class was ascertainable. Order at 18. Accordingly, IPPs' renewed motion addresses 23(b)(3).

A. Additional Common Evidence of Market Impact

The Court, first, found that IPPs' correlation and cointegration analysis did not suffice as proof of impact because "such correlations would exist in any event in the steadily declining prices that befell the ODD industry during the relevant period." Order at 20. IPPs address this by providing:

- 1) a modified cointegration analysis now incorporating additional data produced from all but two defendants, which accounts for declining ODD prices in the market, specifically testing whether prices for ODDs sold to HP and Dell are economically linked to the prices for ODDs sold to the other buyers in the market, so that an overcharge to Dell and HP would tend to cause an overcharge to the rest of the market;
- 2) a new Granger Causality test which also shows that the prices of drives sold to Dell and HP (including an overcharge) would tend to cause the prices of drives sold to all other direct purchaser customers in the market to move similarly; and
- 3) a new statistical analysis showing that for similar ODD models, ■ percent of prices paid by HP and ■ percent of prices paid by Dell were lower than the prices for the same models sold to other customers (further demonstrating Dell and HP prices were floor prices in the market, and by raising this floor the conspiracy caused market-wide price elevation).

See section III.A.

Second, the Court found IPPs' multivariate regression model that estimated the conspiratorial overcharge "assumed" market impact instead of being capable of proving it. The Court reasoned that IPPs had measured the overcharge "coefficients . . . reflect[ing] aggregate estimates for all purchasers purchasing ODDs of particular types in given years." Order at 20. The Court also noted that IPPs had used only "specific examples in the data" which "substantially limit[ed] the conclusions that can be drawn." *Id.* IPPs directly address the Court's ruling regarding IPPs' overcharge regression model in several ways. IPPs submit Dr. Flamm's modified overcharge regression model that:

- 1) is expressly specified to separately estimate if the conspiracy raised prices only of ODDs sold to HP and Dell, or whether the conspiracy impacted ODD prices marketwide;
- 2) is capable of separately measuring monthly overcharges for HP and Dell, and the other ODD purchasers, for each ODD product type in the new class definition (DVD-RW, DVD-ROMs, and COMBO drives); and
- 3) now incorporates cost and sales data from every single defendant that produced useable data (86 percent of the market – PLDS (including owners Philips and Lite-On), BenQ

(partial owner of the PBDS joint venture), HLDS (including owners Hitachi and LG Electronics), TSST (including owners Toshiba and Samsung), Quanta, Pioneer, Panasonic and NEC.

See section III.A.2.

Moreover, IPPs submit new and additional conduct evidence showing collusive high level meetings between defendant company executives in which they expressed their intent to hold frequent meetings to coordinate their ODD sales activities to customers – in order to reduce competition. The evidence includes over 2,400 phone calls and emails where the deep roots of the conspiracy are revealed. Courts frequently accept that this type of conduct evidence is properly used to infer marketwide impact. *See* section III.A.3.

B. Additional Common Evidence of Pass-Through

The Court expressed skepticism whether the overcharge would be passed through to consumers given the size of the overcharge relative to a computer's total cost. It is important to note, however, that while the overcharge over the entire conspiracy may average single digit dollars, there were significant periods early in an ODD's lifecycle when the overcharge would be in double digit dollars. The average overcharge rate over the entire class period is approximately 13.6 percent (declining over the conspiracy period), and ODDs sometimes sold for between \$60 and \$100 during the class period.

But more important, critical to understanding the pass-through analysis in this case, nearly *all component costs were declining* in the personal computer market during the relevant period. Firms in the distribution chain passed through these total component cost reductions due to innovation and the highly competitive nature of the personal computer industry. Thus, there would have been an *even larger cost decline* in the *but-for* world, absent the conspiracy, that would have been passed on to class members. IPPs address the Court's skepticism in several ways.

IPPs submit estimates from data produced in the case showing the average costs of nearly all components were consistently declining during the class period. On average, component costs were decreasing nearly \$[REDACTED] per quarter and \$[REDACTED] per year for laptop computers. And of these costs, even defendant Toshiba acknowledges that the ODD is a "[REDACTED]" – one of four or five major

1 inputs into the computer. This analysis helps frame the correct comparison between the *as-is* and *but-*
 2 *for* world. That is, absent defendants' conspiracy, even greater total cost declines would have
 3 occurred during the class period due to even lower ODD prices. IPPs submit empirical studies by Dr.
 4 Flamm capable of showing that when cost changes increase (or decrease) in \$5 or greater increments,
 5 those incremental cost changes are positively passed through at a rate nearing 100 percent. This
 6 analysis is capable of helping to prove that firms do not have some systematic threshold beyond
 7 which they would stop passing on increased (or decreased) cost changes at a certain level in the *but-*
 8 *for* world. And so, if a firm had a \$45 cost reduction compared to a \$50 cost reduction (or a \$45 cost
 9 reduction compared to a \$40 cost reduction) it would positively pass on both of these cost reductions.
 10 IPPs also submit an empirical study that shows when firms are faced with a \$5 cost change compared
 11 to a cost change greater than \$5, the pass-through rates are not statistically different from each other.
 12 *See* section III.B.1.

13 IPPs also submit empirical studies that are capable of answering the common question of
 14 whether firms in the computer industry inexplicably *suspend* their ordinary behavior of passing on
 15 approximately 100 percent of their cost reductions when setting the initial price for a computer
 16 (opposed to after the computer has been on the market). IPPs' expert has constructed hedonic
 17 regressions that demonstrate a person will get a better or worse quality of a computer at the initial
 18 price point based on changes in input costs. These regressions show that as new technology is
 19 introduced (and the former "new technology" becomes the "old technology") cost reductions
 20 transmit into quality adjusted lower prices. These quality adjusted pass-through studies show 100
 21 percent or greater pass-through. In short, this common evidence is capable of showing class members
 22 received less quality in their computer for their money at the initial price paid than they would have
 23 absent the conspiratorial overcharge. *See* section III.B.2.

24 IPPs also conducted additional pass-through studies on data from OEMs [REDACTED]
 25 [REDACTED] and from the distributor [REDACTED]. These pass-through studies supplement the previous pass-
 26 through studies for firms responsible for approximately 80 percent of computer retail sales in the
 27 market. Like the previous studies, these additional studies consistently confirm the pass-through rate
 28 in the computer industry is positive and nearly 100 percent on average. To be clear, IPPs' studies do

not estimate a uniform pass-through rate. The studies measure the pass-through rate separately for each market participant. Dr. Flamm also conducts a new quantile regression analysis that estimates pass-through rates at different “price points.” This analysis tested the relationship between cost and price changes for computer prices at ’99 dollar increments (e.g., \$299, \$399, \$499, etc.). These studies show that for all price points studied, the pass-through rate was 100 percent or greater. All of this evidence is common proof capable of showing that the conspiratorial overcharge was consistently passed through the distribution chain to the end consumer. *See* section III.B.3.

II. PROPOSED REVISED CLASS AND SUBCLASS

IPPs propose the following revised class definition:

All persons and entities who, as residents of **[the United States or State]** and during the period April 2003 to December 2008, purchased new for their own use and not for resale: (i) a computer with an internal ODD; (ii) a stand-alone ODD designed for internal use in computers; or (iii) an ODD designed to be attached externally to a computer. ODD refers to a DVD-RW, DVD-ROM, or COMBO drive manufactured by one or more Defendants or their coconspirators. Excluded from the class are any purchases of Panasonic-branded computers.

IPPs have narrowed the class three significant ways from the original motion. *First*, the class is limited to DVD and COMBO drives, removing claims for CDs and Blu-rays. *Second*, the class is for purchasers of computers and stand-alone ODDs only, removing Panasonic-branded computers and videogame consoles such as the Xbox. *Third*, although IPPs assert the conspiracy did not end until sometime in 2009, IPPs limit the damages period from April 2003 to December 2008. These changes remove large volumes of products that defendants focused the Court on when they argued heterogeneity should defeat class certification.

In addition, IPPs also propose a Dell/HP subclass, defined as follows:

All persons and entities who during, as residents of **[the United States or State]** and during the period April 2003 to December 2008, purchased new for their own use and not for resale any of the following Dell or HP-branded products: (i) a computer with an internal ODD; (ii) a standalone ODD designed for internal use in computers; or (iii) an ODD designed to be attached externally to a computer. ODD refers to a DVD-RW, DVD-ROM, or COMBO drive manufactured by one or more Defendants or their co-conspirators.

1 This proposed subclass conforms to IPPs' modified overcharge model (which has a separate
 2 coefficient for overcharges paid by Dell and HP), and permits the factfinder to decide whether the
 3 object and impact of the conspiracy was limited to ODDs sold to and incorporated in Dell and HP
 4 computers.²

5 In its October 2014 Order, this Court did not analyze choice of law issues. Order at 21 n.10.
 6 IPPs do not reargue these issues here but incorporate their briefs by reference.³ IPPs request that the
 7 Court apply California law nationwide or, in the alternative, certify the class under the state laws of:
 8 Arizona, California, District of Columbia, Hawaii, Kansas, Maine, Massachusetts, Michigan,
 9 Minnesota, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Mexico, New York, North
 10 Carolina, Oregon, Tennessee, Utah, Vermont, West Virginia and Wisconsin.⁴

11 **III. COMMON ISSUES PREDOMINATE UNDER RULE 23(B)(3)**

12 Analysis of predominance under Rule 23(b)(3) begins with the elements of the underlying
 13 cause of action.⁵ In the antitrust context, plaintiffs must prove: (1) the existence of a conspiracy; (2)
 14 the fact of plaintiffs' antitrust injury (or impact); and (3) the amount of damages sustained as a result
 15 of that violation.⁶ In the Ninth Circuit, "damage calculations alone cannot defeat certification"⁷

16 Rule 23(b)(3) is satisfied when "the court finds that the questions of law or fact common to
 17 class members predominate over any questions affecting only individual members."⁸ The test of
 18 predominance focuses on "whether [the] proposed classes are sufficiently cohesive to warrant
 19

20 ² If the Court certifies the Dell/HP class, IPPs request 30 days to propose additional class representatives
 21 with standing for all states. To allow this motion to be heard as expeditiously as possible, however, IPPs did
 not seek to propose the additional representatives at this time.

22 ³ See generally Choice of Law Mem.; Choice of Law Reply; Friedman I, Exs. 43, 44, 68-130; Friedman
 II, Exs. 41, 104, 178-198.

23 ⁴ With this revised motion, IPPs propose new class representatives for four states: Arizona, the District of
 24 Columbia, Minnesota and New Hampshire. See Appendix A (listing proposed representatives and ODD
 products). This substitution ensures standing under each state's laws given the proposed narrowing of the
 scope of ODDs involved, finished products and time period.

25 ⁵ *In re Dynamic Random Access Memory Antitrust Litig.*, No. M 02-1486, 2006 U.S. Dist. LEXIS 39841,
 26 at *38 (N.D. Cal. June 5, 2006).

27 ⁶ *Id.*

⁷ *Yokoyama v. Midland Nat'l Life Ins. Co.*, 594 F.3d 1087, 1094 (9th Cir. 2010).

28 ⁸ Fed. R. Civ. P. 23(b)(3).

adjudication by representation.”⁹ As the Supreme Court has cautioned, however, “Rule 23(b)(3) . . . does *not* require a plaintiff seeking class certification to prove” that each individual element is “susceptible to classwide proof.”¹⁰ “Rather, the inquiry is more holistic.”¹¹ IPPs propose additional evidence, common to the class, addressing the Court’s concerns in its original class certification order.

A. Plaintiffs’ Common Proof of the Conspiracy’s Impact Demonstrates Class Cohesiveness

Plaintiffs propose three categories of common evidence from which a jury could permissibly find class-wide injury to the direct purchaser class: (1) additional empirical evidence showing that prices in the ODD market were linked, supporting an inference of marketwide impact; (2) a multivariate regression model which controls for factors such as changes in prices and costs and demonstrates impact on all or nearly all class members; and (3) conspiratorial conduct evidence involving the defendants responsible for over 95 percent of ODD manufacturing; this evidence includes express collusive discussions by defendants concerning sales to US customers responsible for over 70 percent of ODD purchases.

1. A Further Developed Cointegration Analysis, And a New Granger Causality Test and Analysis of Dell/HP as Baseline Prices in the Industry Demonstrates Impact to All Class Members

IPPs submit refined and additional empirical evidence capable of showing that defendants’ conspiracy had market-wide impact, in the form of: (a) a further developed cointegration analysis which controls for declining prices in the market; (b) a “Granger Causality” test which shows the prices of drives sold to Dell and HP would cause the prices of drives sold to other customers in the market to move similarly; and (c) a statistical analysis showing that for similar ODD models, ■ percent of prices paid by HP and ■ percent of prices paid by Dell were lower than prices of the same models sold to other customers (in effect the conspiracy set Dell and HP as baseline prices for the industry). Each of these separate analyses is evidence that helps – alone and in combination –

⁹ *In re Wells Fargo Home Mortg.*, 571 F.3d 953, 957 (9th Cir. 2009).

¹⁰ *Amgen Inc. v. Conn. Ret. Plans and Trust Funds*, _U.S._, 133 S. Ct. 1184, 1196 (2013).

¹¹ *In re High-Tech Emp. Antitrust Litig.*, 985 F. Supp. 2d 1167, 1184 (N.D. Cal. 2013).

show that the ODD market was structurally cohesive (prices were linked together) and that all direct purchasers would likely have been impacted by a conspiratorial overcharge.

a. A Further Developed Cointegration Analysis Demonstrates that ODD Prices Charged to HP and Dell ODD Are Economically Linked to ODD Prices Charged to Other Customers in the Market

The Court's Order expressed concern that IPPs did not make a sufficient showing that correlation analyses demonstrated class-wide impact, given the existence of steadily declining prices in the ODD industry. Order at 20. In short, it appeared the Court was concerned over spurious correlation.

Using well-recognized and peer-reviewed techniques, Dr. Flamm has performed a more extensive cointegration analysis, which controls for declining ODD prices in the market. Flamm III, ¶¶ 10-17, Figures 1-2. This refined analysis now includes data from all defendants that produced sufficiently useable data and empirically tests for (and supports) the existence of market-wide impact by studying the prices for ODDs sold to different customer segments. *Id.*, ¶ 17. As Dr. Flamm explains, a "cointegration test is a test for structural economic cohesion among variables with time trends." Flamm III, ¶ 16. Here, Dr. Flamm is testing for economic cohesion between ODD products, prices, producers, and customers. If there is cointegration, there is a strong likelihood of marketwide impact from the conspiracy. And while a correlation analysis does not necessarily imply causation, cointegration does. *Id.*, ¶ 16. The cointegration analysis establishes that these relationships "are **NOT** a spurious artifact of these prices simply declining over time." *Id.*, ¶ 14. In sum, that Dr. Flamm found co-integration here helps establish "the economic forces of substitution in supply and demand link prices for different drives to different customers together in the market ." *Id.* ¶ 17.

b. A New Granger Causality Analysis Also Demonstrates that Prices of ODDs Sold to Dell and HP Caused Price Movements in Drives Sold to Other ODD Purchasers

A new Granger causality analysis also supports and confirms the inference that the overcharge impacted all class members. Granger causality determines whether past pricing has explanatory power in predicting prices. In 2003, Clive Granger was awarded the Nobel Memorial

Prize in Economic Sciences in recognition for his work.¹² The results of Dr. Flamm’s Granger causality analysis show that the prices of the different ODD types sold to different customer segments are causally related to prices of other ODDs sold to other customer segments. Granger causality controls for any possible relationship to common industry costs (as opposed to prices, for which co-integration accounts). Flamm III, ¶ 19. Dr. Flamm concludes that *after controlling for the entire past history of prices and costs for any single type of drive*, the past history of drive prices for Dell or HP has statistically significant value in predicting the prices for other customers. *Id.*, ¶ 21, Figure 3. Dr. Flamm is able to conclude from this analysis that changes in ODD prices in sales to HP and Dell caused price movements among drives sold to other ODD purchasers. *Id.*, ¶ 22. This common evidence further demonstrates class cohesiveness.

c. Economic and Documentary Evidence Demonstrate that HP and Dell Form the Baseline Prices in this Industry; Thus, Fixing Prices to Dell and HP Impacted the Entire Market

This Court expressed skepticism that defendants’ fixing of the prices sold to Dell and HP could act as a mechanism to transmit overcharges to other customers. In part, this Court stated that “[a]mong other things, the empirical data shows that prices charged to other customers did not cluster within an especially narrow range above the supposed ‘floor’ of the prices paid by Dell and HP.” Order at 13. However, the relevant question is not whether prices would cluster narrowly above the supposed floor of prices paid by Dell and HP, but whether elevating prices of products sold to Dell and HP would also lift the levels the other direct purchasers paid – and the economic evidence says that it does.¹³

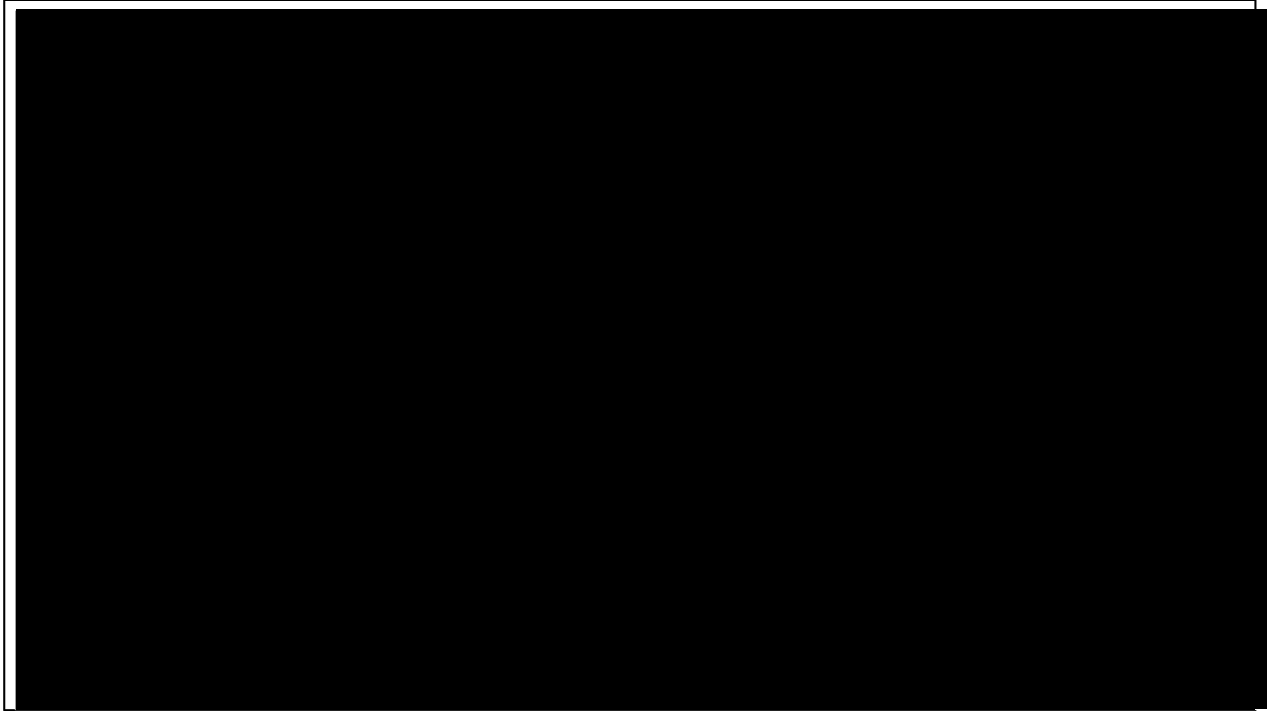
IPPs have used pricing data to demonstrate that prices charged to Dell and HP established the baseline prices of ODDs during the class period. Dr. Flamm’s analysis shows that for purchases of the same drive type, in █████ percent of all transactions other customers paid more than Dell.

¹² See also *In re Amaranth Natural Gas Commodities Litig.*, 269 F.R.D. 366, 383-84 (S.D.N.Y. 2010) (accepting a Granger causality test as one method to demonstrate impact at class certification).

¹³ See, e.g., Flamm III, ¶ 27 (“As demonstrated . . . by the cointegration and Granger causality analysis, these prices too moved in response to price changes for Dell and HP. The fact that there is dispersion for other customers (based on factors such as volume, sales channel, region, or even purely idiosyncratic factors) around a mean price for this group of customers that moves over time in response to changes in Dell and HP pricing does not in any way suggest that these customers were unaffected by explicit price-fixing specifically targeting Dell and HP.”).

1 Similarly, in [REDACTED] percent of transactions, other customer paid more than HP for the same drive type.
 2 Flamm III, ¶ 26.¹⁴ The figure below demonstrates the structural relationship in pricing between Dell,
 3 HP and other customers:

4 **Flamm Figure 4: Dell and HP Act as a Benchmark Floor for Prices in the Industry**



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17 Flamm III, ¶ 25. In the above figure, the blue and red points are the prices paid by Dell and HP, and
 18 the green points are the prices paid by other customers. The consistent structural relationship
 19 between these customer prices demonstrates that the prices negotiated by HP and Dell functioned as
 20 the pricing floor for ODDs. Similar baseline prices have been found in other cases and “[c]ourts have
 21 long held that a plaintiff can demonstrate antitrust impact by showing that the conspiracy caused an
 22 increase to the standard market price of the product at issue.”¹⁵ This evidence powerfully

23
24 ¹⁴ Defendants’ expert agrees. Dr. Ordoover estimated that 96.3 percent of customers paid a price greater than Dell, and 90.8 percent of customers paid a price greater than HP. Ordoover Decl., ¶ 95.

25 ¹⁵ See Ex.199 at 22 (Memorandum Opinion and Order, *Kleen Prods. LLC v. Int’l Paper*, No. 10 C 5711
 26 (E.D. Ill. March 26, 2015)). See also *In re Urethane Antitrust Litig.*, 768 F.3d 1245, 1254 (10th Cir. 2014)
 27 (“The inference of class-wide impact is especially strong where, as here, there is evidence that the conspiracy
 28 artificially inflated the baseline for price negotiations.”); *In re Indus. Diamonds Antitrust Litig.*, 167 F.R.D.
 374, 383 (S.D.N.Y. 1996) (“[I]f a plaintiff proves that the alleged conspiracy resulted in artificially inflated
 list prices, a jury could reasonably conclude that each purchaser who negotiated an individual price suffered
 some injury.”).

1 demonstrates consistent and stable pricing relationships – structure – in the ODD market that
 2 supports an inference that the conspiracy would have impacted the entire market.

3 Finally, additional documents identified in discovery help prove the economic linkages in the
 4 ODD market, reflecting a stable pricing structure for ODDs sold to distributors (those entities that
 5 functioned as intermediaries between the manufacturers of ODDs and end-retailers). For example,
 6 ASI (a national distributor of IT hardware and software products) testified: “[REDACTED]
 7 [REDACTED]
 8 [REDACTED]
 9 [REDACTED].” Ex. 200 at 60. Defendants’ price
 10 lists to distributors confirm this pricing structure. Exs. 201- 221 (examples of defendants’ price lists
 11 for distributor Synnex). Retailers also confirmed they had price protections in place with their
 12 vendors which required vendors to provide the same prices for sales of ODDs (and computers) as to
 13 competitors – further standardizing prices across the industry.¹⁶ And defendants’ own documents
 14 confirm that they set prices for OEMs such as HP and Dell, and a fixed price for distributors (or
 15 “distys”) over the OEM price.¹⁷

16 Documents also confirm that if defendants set prices for distributors or other customers lower
 17 than large OEMs such as HP or Dell, HP or Dell discovered the price differential and demanded a
 18 price correction. For example: an internal Panasonic discussion acknowledges that HP’s procurement
 19 agent had [REDACTED]
 20 [REDACTED]

21
 22 ¹⁶ [REDACTED]
 23 [REDACTED]
 24 [REDACTED]).

25 ¹⁷ [REDACTED]
 26 [REDACTED]
 27 [REDACTED]
 28 [REDACTED]

1 [REDACTED]¹⁸ Documentary evidence thus supports the economic analysis provided by the
 2 IPPs. If accepted by a jury, all of this evidence would support the finding of impact on direct
 3 purchasers.

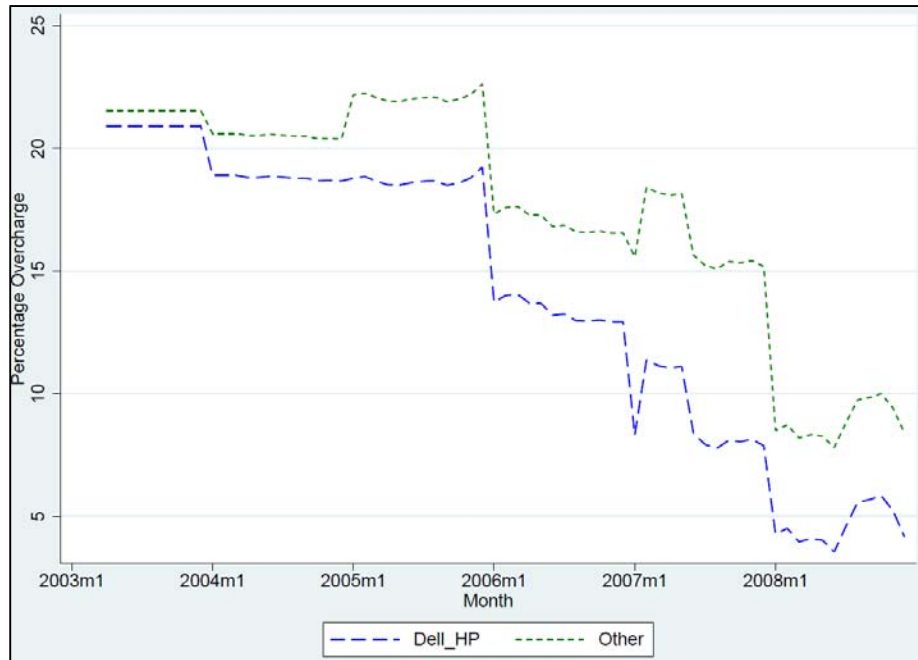
4 **2. The Modified Overcharge Regression Model, if Accepted by a Jury,**
 5 **Demonstrates Marketwide Impact**

6 To address the Court's concerns that the overcharge model assumed impact (and used only
 7 specific examples in the data), Dr. Flamm modified his overcharge regression model. *First*, the
 8 overcharge model now is expressly specified to estimate separate overcharge coefficients for Dell-
 9 HP and "other" customers. By doing so, the overcharge model now expressly is capable of testing
 10 whether the cartel impacted only its two largest customers (Dell and HP) or also the other
 11 purchasers. *Second*, the overcharge regression model is also capable of measuring the overcharge on
 12 a monthly basis, by each different drive in the class (DVD-RW, DVD-ROM and COMBO) for each
 13 of these customer groups. *Third*, IPPs now integrate all useable sales and cost data produced – from
 14 86 percent of the market (all but two defendants). *Fourth*, IPPs provide further detail on the
 15 multivariable regression analysis to show that all factors other than conspiracy are being adequately
 16 controlled for in the overcharge model.

17 **a. The Overcharge Model Expressly Tests for Whether the Conspiracy**
 18 **Impacted Only Dell and HP Computers – or Impacted the Entire Market**

19 From the outset of this case, defendants and their experts have consistently advocated that the
 20 collusive conduct here at most was aimed at sales to Dell and HP – in effect, they claim, this was a
 21 Dell-HP conspiracy only, not a market-wide conspiracy. IPPs have modified their overcharge model
 22 to expressly test the scope and measure the impact of the conspiracy. To do so, the overcharge model
 23 now is specified to estimate separate coefficients, measuring the potential impact on ODD sales to
 24 Dell and HP, compared to sales to other direct purchasers, for each drive type at issue in the case
 25 (DVD-RW, DVD-ROM, COMBO). Below is a visual of the DVD-RW results:

26
 27 ¹⁸ [REDACTED]
 28 [REDACTED]

Flamm Figure 6: Overcharge on DVD-RWs by Month and Customer Type

Flamm III, ¶ 40. The blue line in the above figure represents the overcharge rate paid by Dell and HP for DVD-RW drives, while the green line represents the overcharge rate paid by other customers for DVD-RW drives. The Y-axis shows the percent of overcharge due to the cartel paid by each group, and the X-axis represents the relevant time period.

The model is capable of showing if the conspiracy raised prices of ODDs only sold to HP and Dell and by how much, or whether the conspiracy impacted ODD prices market-wide. As the Court can observe, the model is capable of separately demonstrating overcharge rates to Dell/HP and the other customers – with the other customers frequently being overcharged more. This is unsurprising, due to the bargaining power of Dell and HP. So IPPs’ common evidence would allow the fact-finder to decide whether the conspiracy and its impact was limited to Dell and HP or was market wide; the model even allows the fact-finder to decide on the types of drives the conspiracy did or did not impact (and the amount).

b. The Modified Overcharge Model Separately Measures Monthly Overcharge for Each ODD Product Type in the Class

This Court found that IPPs’ proposed regression analysis assumed, rather than demonstrated impact, because it reflected “aggregate estimates for all purchasers purchasing ODDs of particular

types in given years.” Order at 20. The overcharge model *measures* a monthly overcharge for each ODD product type in the class definition (DVD-RW, DVD-ROM and COMBO drives) and by customer group (HP-Dell versus others). Flamm III, ¶¶ 40-42. This results in over 395 overcharge measurements, which are then summarized into a proposed measurement of damages: \$1.7 billion – an average 13.6 percent overcharge. Flamm III, Ex. 3. Recent academic work which surveys the impact of cartels from 1888 to the present (over 100 years of data on the damages attributable to 1400 cartels) found a *median* average long-run overcharge of 23 percent.¹⁹

c. The Modified Overcharge Model Now Incorporates Cost and Sales Data from Every Defendant Who Produced Useable Data

This Court found that IPPs had only used examples in the pricing data, “[i]dentifying some instances where the empirical data appears to match the model.” Order at 20. IPPs have now incorporated data from *every single defendant who produced useable sales and cost data*; the data used is from firms representing over 86 percent of the worldwide ODD sales. The overcharge model includes data from: the PLDS joint venture (including owners Philips and Lite-On); BenQ (part of the PBDS joint venture – precursor to the PLDS joint venture); the HLDS joint venture (including owners Hitachi, LG Electronics), TSST (including owners Toshiba and Samsung), Quanta, Pioneer, Panasonic and NEC (part of the Sony NEC Optiarc joint venture). Flamm III, ¶¶ 43-45. Even though IPPs are not required to present their final impact and damages model at this stage, IPPs’ model now utilizes data from almost the entire ODD market.

d. The Overcharge Model Controls for Important Market Factors and Is Designed Based on the Specific Structural Market Characteristics that Exist in the Personal Computer Industry

Courts have widely accepted regression models far less sophisticated than the one offered here as capable of demonstrating antitrust impact at the class certification stage.²⁰ The Federal

¹⁹ See Connor, John M., Price-Fixing Overcharges: Revised 3rd Edition (February 24, 2014), *available at* SSRN: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2400780.

²⁰ See, e.g., *In re Elec. Books Antitrust Litig.*, No. 11-md-2293, 2014 U.S. Dist. LEXIS 42537, at *78-79 (S.D.N.Y. Mar. 28, 2014) (rejecting argument that regression model “assumes, rather than proves, common injury”); *In re Ethylene Propylene Diene Monomer (EPDM) Antitrust Litig.*, 256 F.R.D. 82, 100, 102 (D. Conn. 2009) (“Whether the plaintiffs’ multiple regression analysis incorporates the necessary variables/factors to reach the correct economic conclusion is an issue to be reserved for the merits, because it has no bearing on whether the plaintiffs can meet the predominance prong.”); *In re TFT-LCD (Flat Panel) Antitrust Litig.*, No.

Judicial Center’s Reference Manual on Scientific Evidence explains that “[m]ultiple regression analysis goes beyond the calculation of correlations; it is a method in which a regression line is used to relate the average of one variable—the dependent variable—to the values of the other explanatory variables.”²¹ A regression analysis can, therefore, be used to “predict the values of one variable” (the price of ODDs) “using the values of the others”²² (the independent variables that might have an effect on the price of ODDs, such as the ODD cartel).

The overcharge model uses a benchmark period of two years and five months (29 months total – July 2009 through December 2011) after the class period to compare the prices class members paid during the class period to those prices outside the period. Flamm III, ¶ 34. The model also includes numerous independent variables to control for non-conspiratorial economic factors that normally influence price, such as:

- the bill of material costs for each type of ODD;
- manufacturing costs for each type of ODD;
- the number of sellers for each type of ODD;
- the number of units sold of personal computers for each type of ODD;
- the average transaction size for each type of ODD;
- Other microeconomic market variables with impacts specific to each drive type, such as price indices for memory, all computer products, software and Internet;
- Thirty-seven “macro-economic” variables common to all products to control for general economic conditions, including industrial production (eight countries), unemployment rates (six countries), exchange rates (seven countries), consumer price indices (eight countries), and producer price indices (eight countries); and

M 07-1827, 2012 U.S. Dist. LEXIS 21696, at *40 (N.D. Cal. Feb. 21, 2012) (“Even if regression models are not enough, standing alone, to establish classwide impact, they may nevertheless be relevant to the issue. A large average overcharge, for example, might make it more likely that every direct purchaser was overcharged to some degree.”); *In re Polyurethane Foam Antitrust Litig.*, No. 1:10 MD 2196, 2014 U.S. Dist. LEXIS 161020, at *177 (N.D. Ohio Nov. 17, 2014), *aff’d*, *In re Carpenter Co.*, No. 14-0302, 2014 U.S. App. LEXIS 24707 (6th Cir. Sept. 29, 2014) (accepting regression model as one piece of evidence demonstrating impact, rejecting Dr. Ordovery’s challenges regarding aggregation and individually varying prices to customers).

²¹ Daniel L. Rubinfeld, *Reference Guide on Multiple Regression*, Reference Manual on Statistical Evidence 334 (Fed. Judicial Center, 3d ed. 2011).

²² *Id.*

- Twelve traffic variables measuring defendants’ communications (specifying whether the communications reflect an explicit agreement on price, implicit agreement, or the content of the conversation was unknown).

Flamm III, ¶ 37.

Also, the modified regression model Dr. Flamm presents is the exact form of regression model economists advocate using to test for – rather than assume – classwide impact in antitrust class actions. Economists publishing in the ABA Section of Antitrust Law recommend that to avoid “assuming” impact, “[o]ne approach is to divide the proposed class into categories and use a model that allows the value of the dummy variable to be different for different categories.”²³ This approach, however, must be tempered by the amount of data available, as a purchaser-by-purchaser model “requires an enormous amount of data and will not often be feasible.”²⁴ Dr. Flamm has modified his model to meet this exact approach – now separately estimating impact and damages to Dell-HP and the other purchasers in the industry and separately estimates coefficients for each of the different drive types at issue in the case. And Dr. Flamm’s decisions on the model’s categorization of Dell-HP versus “other” customers and separate coefficients for each drive type is strongly supported by Dr. Flamm’s cointegration and Granger causality analysis, and the commodity nature of the ODD market.²⁵

Defendants likely will continue their disaggregation mantra in opposition – this has become a common tactic in antitrust class actions.²⁶ But further disaggregation of data (as defendants have

²³ Ex. 231 (ABA Section of Antitrust Law, *Econometrics: Legal, Practical, and Technical Issues*, 222, 223 (2005)).

²⁴ *Id.*

²⁵ *See* Friedman II, Ex. 136 (European Commission finding: “the parties consider the relevant market likely to be the overall market for PC ODDs, which could possibly be subdivided by half-height PC ODDs and slim PC ODDs”); *Id.*, Ex. 137 (*In re the Matter of Sony Optiarc Inc.’s Violation of the Fair Trade Act*, (May 16, 2013) (Taiwanese Fair Trade Commission finding that “For computer manufacturers, end-users or ODD manufacturers, there’s a high degree of substitution between different types of ODDs and as such, they should undoubtedly be classified as the same-product market.”); *Id.*, Ex. 138 (*In re the Matter of Toshiba Samsung Storage Technology Korea Corporation’s Violation of the Fair Trade Act* (May 20, 2013) (making same findings regarding substitution of ODDs). *See also* section III.B.3, *infra* (distinguishing ODDs from GPUs, including Dell documents explaining why ODDs are commodities and GPUs are not).

²⁶ *See, e.g., In re Air Cargo Shipping Servs. Antitrust Litig.*, No. 06-MD-1175, 2014 U.S. Dist. LEXIS 180914, at *265-66 (E.D.N.Y. Oct. 15, 2014) (rejecting defendants’ use of 21,304 sub-regressions because “mere fact that the defendants’ experts’ have found a way to exaggerate this variability by using questionable

1 previously proposed) would more likely lead to misleadingly showing no statistical overcharge rather
 2 than reliably identifying an effect. As one Court recently noted (in approving the use of pooled data
 3 across employment divisions in a regression model), the “design of a statistical model must
 4 necessarily follow the structure of the entity being studied in light of the questions sought to be
 5 answered.”²⁷ Unbounded “disaggregation tends to mask common mechanisms because the sample
 6 size in each unit is so small.”²⁸ Citing a paper aptly titled, “‘Statistical Dueling’ with Unconventional
 7 Weapons,” the District Court explained: “[Statistical] power increases with sample size. A gender
 8 gap of a specific magnitude (say 15%) is more likely to show up as statistically significant in a
 9 regression analysis based on 1,000 observations than in one based on 100 observations.”²⁹ The paper
 10 the district court relied on showed a similar type simulation as Dr. Flamm did in the first round of
 11 briefing. The results were the same: disaggregated data gave wrong results that contradicted the
 12 known true values in the simulation.³⁰

13 Dr. Flamm explains how the empirical tests he conducted, such as cointegration and Granger
 14 causality, the ODD market characteristics, and principled application of statistics all support the
 15 design of his model and strongly disfavor further disaggregation. Flamm III, ¶¶ 47-57 (explaining
 16 why the multivariate regression model appropriately aggregates data to increase statistical precision,
 17 after the appropriate examination of market structure). Dr. Flamm correctly balanced the data
 18 available necessary to have statistically meaningful results, against further subdividing the data into
 19 smaller categories to test whether there are supply and demand considerations in this market
 20 warranting further disaggregation. At bottom, this is a merits argument.

21
 22 _____
 23 econometric practices to manipulate [plaintiffs’] model is not a compelling reason to deny class
 24 certification.”).

25 ²⁷ *Chen-Oster v. Goldman, Sachs & Co.*, No. 10-civ-6950, 2015 U.S. Dist. LEXIS 29183, at *21
 26 (S.D.N.Y. Mar. 10, 2015).

27 ²⁸ *Id.*

28 ²⁹ *Id.* See also *Polyurethane*, 2014 U.S. Dist. LEXIS 161020, at *100 (“It is undisputed that generating
 statistically significant positive coefficients turns on sample size.”).

³⁰ William T. Bielby and Pamela Coukos, “*Statistical Dueling*” with *Unconventional Weapons: What
 Courts Should Know About Experts in Employment Discrimination Class Actions*, 56 Emory L.J. 1563, 1587
 (2007)).

1 **3. The Continuous Duration and Widespread Nature of the Conspiracy, If**
 2 **Accepted by a Jury, Supports Finding of Classwide Impact**

3 The Court correctly found that “there is no real dispute” that factors “‘conducive’ to
 4 anticompetitive activity” existed in the ODD industry. Order at 12. These factors included: high
 5 barriers to entry, high concentration among sellers, an extensive pattern of cross-ownership and joint
 6 ventures, and a commoditized product. Flamm I, ¶¶ 26-105.

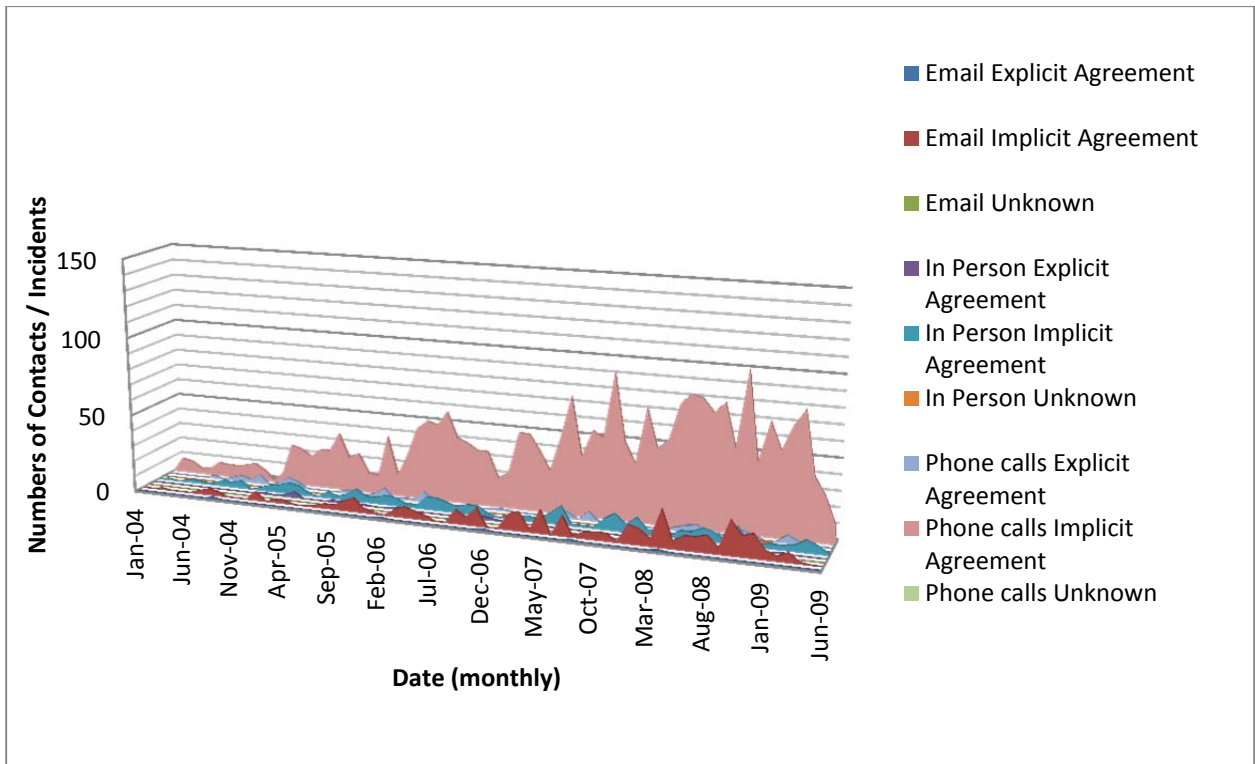
7 In addition to this market structure, however, defendants’ multi-year, continuous collusion
 8 also supports an inference of classwide impact. In their original motion, IPPs provided 2,452
 9 examples of collusive activity between the defendants in furtherance of the conspiracy.³¹ These
 10 2,452 examples span at least *six years* and over this period expressly cover customers which
 11 comprise 71 percent United States purchases of ODD. Discovery received since the filing of the
 12 original motion for class certification have only added to the evidence of defendants’ collusion
 13 spanned the entire class period, types of ODDs, and customers beyond HP and Dell.³² The following
 14 figure represents the numbers and types of collusion identified by IPPs from defendants’ own
 15 documents and phone records (mirroring the 2,452 examples provided to the Court):
 16
 17
 18
 19
 20
 21
 22

23

 24 ³¹ Friedman II, Ex. 151.

25 ³²

CONTACTS BETWEEN ODD CARTEL MEMBERS



Three separate government enforcement agencies have found the ODD cartel violated antitrust laws. In the United States, the Department of Justice pursued criminal charges against Hitachi-LG Data Storage, Inc., and four of its executives, who pled guilty to thirty-seven felony counts of bid-rigging, two felony counts of price-fixing, and one felony count of wire fraud.³³ In 2013, the Taiwanese Fair Trade Commission fined TSST-Korea, HLDS, PLDS and Sony Optiarc for their participation in the ODD cartel.³⁴ And most recently, sources leaked that the European Union may issue penalties to the ODD cartel in the summer of 2015, based on its three-year old investigation.³⁵

Defendants have tried to portray their continuous stream of direct communications as sporadic, low-level employees exchanging general market information. The Taiwanese FTC rejected

³³ Class Cert Mot. at 11; Friedman I, Exs. 2-6 (Information filed in the criminal actions against HLDS, Woo Jin (Eugene) Yang, Sik (Daniel) Hur, Sang Hun (SH) Kim, and Young Keun (YK) Park).

³⁴ Friedman II, Ex. 137-38.

³⁵ Friedman III, Ex. 236 (<http://www.bloomberg.com/news/articles/2015-05-08/cd-dvd-drive-makers-said-to-face-possible-eu-antitrust-fines-i9fg8rff>).

1 this defense, when imposing fines it concluded: “The interaction between employees [of the ODD
 2 conspirators], at all levels of the involved enterprises, was extremely frequent.”³⁶

3 Against this backdrop of continuous collusion throughout the class period, documents early
 4 in the class period show high-level meetings, where executives agree to regular meetings and efforts
 5 to stabilize the prices of ODDs:

- 6 • [REDACTED]
- 7 [REDACTED]
- 8 [REDACTED]
- 9 [REDACTED]
- 10 [REDACTED]
- 11 [REDACTED]
- 12 [REDACTED]
- 13 [REDACTED]
- 14 [REDACTED]
- 15 [REDACTED]
- 16 [REDACTED]
- 17 [REDACTED]
- 18 [REDACTED]
- 19 [REDACTED]
- 20 [REDACTED]
- 21 [REDACTED]
- 22 [REDACTED]
- 23 [REDACTED]

24 TSST – the joint venture between Toshiba and Samsung and a dominant market player with nearly
 25 24 percent market share in 2008 – acted as a central player, repeatedly holding high-level meetings
 26 to facilitate the conspiracy with other competitors. For example:

27
 28 ³⁶ Friedman II, Ex. 137 at 4.

- TSST/Sony: In January 2005, the Kyotaro Imamura, the General Manager of Sony

These high-level executives' discussions lay bare the object of the conspiracy – to restrain the prices of ODDs.

IPPs also have identified **1,267** phone calls between competitors based on phone records.³⁷ The exact content, of course, of these conversations over a six year period cannot be known. But recently, IPPs were received [REDACTED] recordings which will allow a jury to peer into the conspiratorial discussions. Recordings made of two conspirators during the DOJ's criminal investigation into the ODD cartel show an incriminating *mens rea* and collusion over a broad range of topics: [REDACTED]

³⁷ Friedman II, Ex. 151.

³⁸ Ex. 247 at 2.

³⁹ Ex. 248 at 3.

1 [REDACTED] s.⁴⁰ All of this evidence, if accepted by a jury, supports the inference that impact was
 2 widespread to the class.⁴¹

3 **B. Common Evidence Is Capable of Demonstrating Conspiratorial Overcharges Were**
 4 **Consistently Passed Through to Consumers**

5 The existence and rate of pass-through is fundamentally a market question (a common
 6 question answered with common evidence). In competitive markets, economics (theory and a litany
 7 of empirical studies) consistently predict and demonstrate pass-through rates to be at or near 100
 8 percent. That is, for every dollar cost reduction there is at least a dollar price reduction. This is
 9 because in a cost declining market, competition drives prices down to costs. This is easily explained:
 10 if a firm tries to keep a cost reduction for itself – to increase margins over costs – other firms who
 11 also receive similar cost reductions will lower their prices (passing on the cost reductions) to steal
 12 market share from the firm(s) who do not pass-on costs reductions by lowering prices. This is the
 13 nature of competition. Thus, in competitive markets, profit maximizing behavior passes-on cost
 14 reductions in full into lower prices.

15 To further demonstrate the personal computer market – which all parties agree is a highly
 16 competitive market - is consistently characterized by positive pass-through rates that center on 100
 17 percent, IPPs provide additional common evidence showing the overcharge due to the ODD cartel
 18 was passed-through the market to consumer class members. To put it in context, IPPs have now
 19 measured pass-through rates for over 273 million products. While the pass-through rates are not
 20 uniform, they are uniformly high and positive – meaning that overcharges were consistently passed
 21 through to consumers.

22 In its October 2014 Order, this Court expressed concern that IPPs had not presented a
 23 persuasive explanation as to why it would be “reasonable to assume a uniform pass through rate
 24 given that ODDs typically make up a relatively small portion of the cost of the products into which
 25 they are incorporated, and given the existence of price points—i.e., the common practice in the
 26 industry of selling products costing in the hundreds of dollars at prices just under the next \$100

27 ⁴⁰ Ex. 249 at 1.

28 ⁴¹ *Urethane Antitrust Litig.*, 768 F.3d at 1254 (“Under the prevailing view, price-fixing affects all market participants, creating an inference of class-wide impact even when prices are individually negotiated.”).

mark.” Order at 21. The Court posed the hypothetical situation where the overcharge paid by a direct purchaser was only \$4, and whether it was plausible that the retailer would then raise the price of a computer that otherwise would sell for \$999 to \$1003. *Id.* IPPs’ additional analyses respond to the Court’s concerns.

1. Common Evidence Can Demonstrate that the Consistent and Significant Declining Costs and Prices in the Personal Computer Market Would Have Been Even Larger and Passed-Through to Consumers in the *But-For* World

The Court’s concern regarding the pass-through of the overcharge to consumers seemed based, in part, on defendants miscasting the *but-for* world. In the computer industry, at all levels in the distribution chain, industry participants (and defendants) agree computer sales were marked by intense competition.⁴² As economics also predict, this intensely competitive wholesale and retail market for computers is characterized by a consistent decline in computer component costs and computer prices. Flamm III, ¶ 85.⁴³ Competition among computer makers, and across retail channels through which their products were sold, caused consistent price decreases (nominal and quality adjusted) as costs declined over time. In part, this was due to competitive market conditions at the retail level, where retailers constantly monitored the prices of their competitors,⁴⁴ and frequently adjusted their own retail prices by *even a few dollars* in reaction.⁴⁵ And testimony from computer

⁴² Defs.’ Opp. at 11 (“The Class Period was marked by intense price competition.”). [REDACTED]

⁴³ Industry participants confirmed that the class period saw a constant decline in the price of computers. [REDACTED]

⁴⁴ [REDACTED]

⁴⁵ [REDACTED]

1 retailers such as [REDACTED] confirm they set prices based on the *total costs* – in this
 2 industry, declining costs –of a computer, not on a component-by-component cost basis.⁴⁶
 3 Corresponding with declining component costs and computer prices, the quality of components in
 4 computers increased over time.

5 Dr. Flamm used detailed component data provided by [REDACTED] to estimate the
 6 average cost decline of material component parts during the class period. On average, input costs in a
 7 laptop declined \$ [REDACTED] per quarter and \$ [REDACTED] per year. Flamm III, ¶ 84. One example to put this in
 8 context – the key component parts of a laptop that would have cost \$ [REDACTED] in the first quarter of
 9 2004, would have cost only \$ [REDACTED] in the fourth quarter of 2008. *Id.* And testimony from retailers
 10 consistently confirms that as these component costs were decreasing the quality of computers
 11 increased at the same time.⁴⁷

12 In its Order, the Court posed the hypothetical of whether an overcharge of \$4 would cause the
 13 increase in the price of a computer from \$999 to \$1003. This hypothetical appears to be based on
 14 defendants' incorrect framing of IPPs' theory and evidence, the personal computer industry, and the
 15 correct hypothetical *but-for* world comparison. The *but-for* world would not be characterized solely
 16 by a \$5 cost difference in isolation, with all other costs remaining fixed. Rather, in the *but-for* world
 17 – the hypothetical world in which no conspiracy had occurred – there would have been an even
 18
 19
 20

21 [REDACTED]
 22 ⁴⁶ [REDACTED]
 23 [REDACTED]
 24 [REDACTED]
 25 [REDACTED]
 26 [REDACTED]
 27 [REDACTED]
 28 [REDACTED]

1 greater total cost decline occurring at the same time and factored into the total price of the computer.
 2 This is a consistently declining cost and price market.⁴⁸

3 Thus, in a correctly illustrate correct *but-for* world - using the pass-through rate of nearly 100
 4 percent from Dr. Flamm's studies - absent the conspiracy there would have been an even larger cost
 5 decrease in the *but-for* world. So instead of benefitting from 100 percent of a hypothetical \$40 cost
 6 decrease (the *as-is* world), consumers would have received 100 percent of a \$45 cost decrease. In
 7 both, consumers would receive a price reduction, but in the properly framed *but-for* world consumers
 8 would have received an even greater price reduction associated in the larger cost reduction to OEMs
 9 and retailers.

10 Dr. Flamm constructed an empirical study (common proof) that supports this very
 11 proposition. Dr. Flamm tested whether pass-through rates change for increasing cost changes in \$5
 12 dollar increments. Dr. Flamm compared pass-through rates above and below \$5, \$10, \$15, etc. all the
 13 way through \$55. Dr. Flamm found "in all cases . . . statistically significant pass-through above and
 14 below the 'magic' threshold" and "no statistically significant evidence of heterogeneity. . ." Flamm
 15 III, ¶ 159. Dr. Flamm performed this analysis for both desktops and laptops, and on data produced by
 16 major distributors and retailers such as [REDACTED]
 17 Flamm III, ¶ 134, Ex. 8A-F. This further demonstrates that firms are passing on costs at a rate set by
 18 competition, applied to their total cost changes – not by isolating incremental cost changes on a
 19 component-by-component basis. Absent the conspiracy, ODD costs (and prices) could have been
 20 lower.

21 Dr. Flamm constructed another study that is common evidence capable of further confirming
 22 these findings. Dr. Flamm additionally tested whether the pass-through rate is statistically different
 23 when there are cost changes above and below \$5. Flamm III, ¶ 154, Exs. 10-11. The pass-through
 24

25 ⁴⁸ [REDACTED]
 26 [REDACTED]
 27 [REDACTED]
 28 [REDACTED]

1 rates are high and positive and the tests show the rates are not statistically different from each other.
 2 *Id.*

3 In sum, this common evidence will be able to strongly demonstrate that for “small” and
 4 “large” cost changes, pass-through is uniformly positive in the personal computer market. If accepted
 5 by a jury, this evidence would be sufficient to find class-wide impact to the indirect purchaser class.

6 **2. Additional Economic Analysis Is Capable of Demonstrating that the Overcharge**
 7 **Was Also Passed-on In the Form of Decreased Quality Computers Compared to**
 8 **the *But-For* World**

9 Although this Court remarked that “price points” were “common practice in the industry,”
 10 retailer testimony has not embraced defendants’ claim of rigid price points on the left-hand side of
 11 the decimal point.⁴⁹ For example, Dr. Flamm finds that at Best Buy nearly [REDACTED] percent of sales in the
 12 first month were at prices other than the initial price point. Flamm III, ¶ 74. Instead, pricing in the
 13 computer industry is more nuanced. Computers are sold into general price bands for different quality
 14 of computers, e.g., high, medium, and low end.⁵⁰ Prices then decrease fairly quickly during the
 15 relatively short life cycle of the computer, as costs decrease and new and better components are
 16 introduced. As a computer with a certain configuration ages, the computer configuration with those
 17 components transition into the next, lower price band over time as costs go down. When introducing
 18 new models, OEMs facing competition try to design the highest quality computer for the lowest
 19 possible cost, to meet margin and retail price targets. Thus, OEMs attempt to balance quality, price,
 20 and costs by negotiating with their component suppliers and also making design and quality choices
 21 to reach these targets.

22 [REDACTED]

23 ⁴⁹ [REDACTED]

24 [REDACTED]

25 [REDACTED]

26 [REDACTED]

27 ⁵⁰ [REDACTED]

28 [REDACTED]

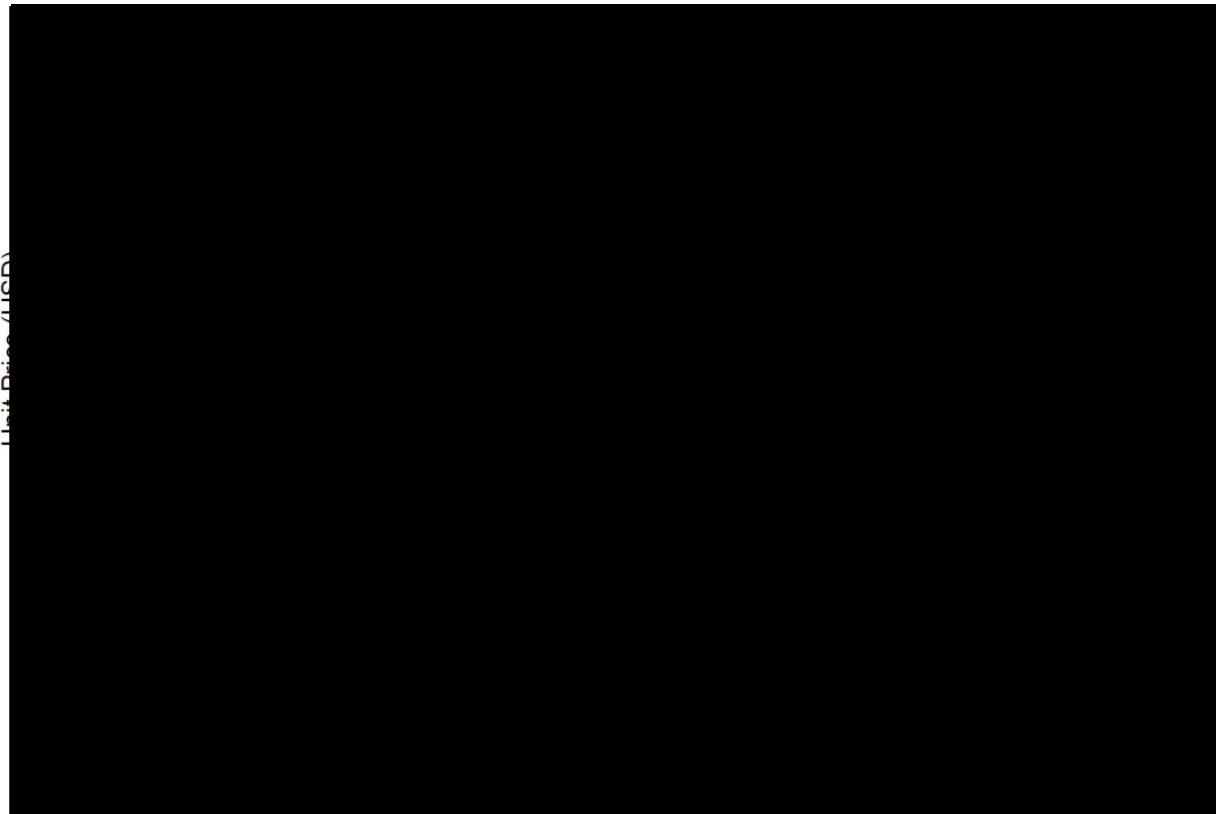
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Flamm Figure 18: Changes in Quality Level of Apple MacBooks Sold at Best Buy



Flamm III, ¶ 98. This demonstrates that there is an innovation cycle in the computer industry where costs and prices are declining – both in quality adjusted and nominal terms.

Documents produced by OEMs Dell and HP confirm that they would substitute different and lower quality (cost) parts to reach their cost and price targets as well as the retail price bands. These cost and quality decisions focused often on single digit dollar (and even cents) savings when making quality adjustments to reach target prices. For example, documents produced by Dell show:

- [REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]

And documents produced by HP mirror this process of adjusting quality of component parts to meet target prices:

- [REDACTED]
- [REDACTED]

In addition to these quality adjustment decisions based on single digit dollar amounts, it is clear that firms viewed, within the cost of a computer, the ODD as one of the [REDACTED] cost components that drove the total computer price. In its component cost data (ordered produced by Chief Magistrate Judge Spero), defendant Toshiba characterizes the ODD as a “[REDACTED]” in its computers – one of the [REDACTED] largest found in a computer. The following diagram represents the relative size of the ODD as a major cost:⁵³

⁵¹ [REDACTED]

⁵² [REDACTED]

⁵³ Flamm III, ¶ 88. IPPs have performed a similar analysis for other Toshiba computers where the component costs were produced by Toshiba. *See* Flamm III, ¶ 89, Ex. 5.

1 **Flamm Figure 15: The ODD Is a “[REDACTED]” Representing a Large Share of Computer Costs**
 2 **(Toshiba Model PSAD0U-0N500N)**



15
 16 Dell also viewed the ODD as a critical cost component in the computer – targeting the ODD [REDACTED]
 17 [REDACTED]⁵⁴ HP’s documents also mirror this, listing
 18 the ODD in a consumer notebook as [REDACTED]⁵⁵

19 Dr. Flamm explains that it does not make economic sense to suggest, “as Defendants do, that
 20 while retailers may pass-through 100%+ of small cost changes after product is first sold in
 21 marketplace, as statistical analysis established, they somehow ignore cost changes in setting initial
 22 prices for ODD products.” Flamm III, ¶ 144. Despite this, IPPs sought (and received) detailed cost
 23 and product characteristic data available from three OEMs ([REDACTED]) to measure the
 24 relationship between quality adjusted cost changes and quality adjusted price changes. Evidence of
 25 this relationship can be used to help establish that computer quality is impacted by cost changes. In

26 ⁵⁴ Se [REDACTED]
 27 [REDACTED]

28 ⁵⁵ [REDACTED]
 [REDACTED]

1 short, as cost declines, consumers get increased quality (*i.e.*, better components) for the same price. It
 2 is a simple and irrefutable point: a consumer who buys a \$699 computer today gets a better computer
 3 for the same \$699 price a consumer would have paid six months ago. This is because prices on a
 4 quality adjusted basis have declined due to cost decreases in components that have been passed-on to
 5 consumers in the form of better computers. IPPs have measured the existence and impact of quality
 6 on the cost of a computer in two ways.

7 First, using a hedonic regression, Dr. Flamm controlled for computer characteristics and
 8 shows statistically that there is a stable and predictable relationship between computer costs and the
 9 introductory prices at which a computer is first sold by retailers. Flamm III, ¶ 134.

10 Next, Dr. Flamm performed additional studies using detailed component level characteristic
 11 and cost information provided by [REDACTED]. These studies demonstrate that
 12 changes in computer component costs are reflected in the quality-adjusted computer prices at their
 13 introductory prices in the market. These new studies confirm that a cost reduction is embedded into
 14 the initial prices that new computer models are sold at when they first hit the market with roughly
 15 100 percent pass-through rates. *Id.*, ¶¶ 113-128.

16 Again, this common evidence can be used to demonstrate that there is an innovation cycle in
 17 the computer industry where costs and prices are declining – both in quality adjusted and nominal
 18 terms. And when measured, the rate of passing through to customers for these quality and nominal
 19 price changes is or approaches on average 100 percent. Thus, it can be strongly inferred that any
 20 additional cost reductions – for example lower costs for ODDs without the conspiracy – would have
 21 been passed on to consumers in the form of a better quality computer at an initial price point (or
 22 band), a lower nominal price, or both.

23 **3. IPPs Have Tested Pass-Through Rates on Over 273 Million Products,** 24 **Demonstrating Pass-Through Rates Between 59 and 194 Percent**

25 The continuing cost declines did not affect just the initial price and product characteristics
 26 selected by OEMs and retailers for the computers they sold. Continuing reductions in component
 27 prices, working through market forces generated by intense competition among PC OEMs and
 28

retailers, led to continuing reductions in the costs and prices of PCs after their initial price was set in many cases. When these continuing cost declines occurred, they also led to further price reductions.

In their original class certification motion, IPPs analyzed datasets from 19 companies for more than 194 million ODD products spanning seven years.⁵⁶ Using additional data, IPPs have now measured the pass-through rates for over 273 million ODD products, performing additional analysis

Flamm Table 8: Summary of Pass-Through Rates

	Pass-Through Rate Summary ¹					
	Desktops		Laptops		Drives	
	Pass-through	Rev (\$M) ²	Pass-through	Rev (\$M) ²	Pass-through	Rev (\$M) ²
I. Computer OEM						
NEC	n/a		n/a		68%	3,654
Panasonic	n/a		n/a		98%	442
II. Distributor						
Ingram	103%	3,533	101%	6,964	104%	271
SED	103%	67	125%	172	83%	28
III. Retail						
Best Buy	99%	8,823	113%	15,202	104%	538
CompUSA	n/a		92%	7,969	n/a	
Fry's	77%	437	116%	1,614	118%	582
Newegg	85%	100	64%	385	105%	88
Office Depot	n/a		n/a		118%	38
OfficeMax	n/a		n/a		96%	31
PC Connection	94%	673	92%	1,324	102%	35

Flamm III, ¶ 174, Exs. 7, 9, 12, Appendix.

⁵⁶ See Flamm II, App. A (Exhibit 1: Summary of Pass-Through).

⁵⁷ Although defendants challenged IPPs' pass-through analysis as to Dell as non-representative, Dr. Flamm randomly selected the models that he analyzed from distinct groups, giving him a sufficient basis from which to testify that his pass-through analysis of these models was representative of the whole. Ex. 272 at 571-72 ("Q: You randomly selected the data that you used for your analysis of Dell computers? A: Yes, that's correct. I didn't randomly select the data. I randomly selected the models I analyzed from distinct groups.").

1 A one hundred percent pass-through rate means that cost changes are passed through dollar-
 2 for-dollar. A zero percent pass-through rate would mean that cost changes were not passed through
 3 to consumers. Any positive pass-through rate means that overcharges were passed through to
 4 consumers, demonstrating impact to consumers, but with damages less than the full amount of the
 5 overcharge. The above summary table shows that pass-through were uniformly positive. This pass-
 6 through analysis covers nearly all of the market in the United States, including companies covering
 7 approximately 80 percent of personal computer retail sales and 45 percent of top distributor sales.
 8 *Id.*, ¶ 175.

9 In addition to this pass-through analysis, Dr. Flamm tested the impact of focal prices of
 10 computers in the form of a quantile regression analysis. The quantile regression tests the relationship
 11 between cost and price changes for computer price points at ‘99 dollar increments (e.g., \$299, \$399,
 12 \$499, etc.). These studies showed that for all points, the pass-through rate was 100 percent or greater.
 13 Flamm III, ¶ 174. This shows that even with the existence of price points in the market, overcharges
 14 were still passed-through to consumers.

15 And so, although these pass-through studies uniformly demonstrate impact, the pass-through
 16 rate is not uniform. To the extent there is any concern regarding a varying pass-through rate and
 17 individualized issues of damages, it is clear that individualized damages are not fatal to class
 18 certification. As the Ninth Circuit recently explained in *Jimenez v. Allstate Ins. Co.*, “[i]n this circuit .
 19 . . damage calculations alone cannot defeat class certification.”⁵⁸ The Ninth Circuit cited approvingly
 20 to Judge Posner’s opinion in *In re Whirlpool* where the Seventh Circuit concluded that “[i]t would
 21 drive a stake through the heart of the class action device . . . to require that every member of the class
 22 have identical damages.”⁵⁹

23
 24
 25
 26 ⁵⁸ *Jimenez v. Allstate Ins. Co.*, 765 F.3d 1161, 1167 (9th Cir. 2014) (alteration in original). *See also Leyva*
v. Medline Indus., Inc., 716 F.3d 510, 513 (9th Cir. 2013) (same).

27 ⁵⁹ *Butler v. Sears, Roebuck and Co.*, 727 F.3d 796, 801 (7th Cir. 2013). *See also In re Deepwater Horizon*,
 28 739 F.3d 790, 810-17 (5th Cir. 2014) (holding that as long as the plaintiffs were harmed by the same conduct,
 disparities in how or by how much they were harmed did not defeat class certification).

1 The facts of this case also serve to distinguish it from the concerns raised by Judge Alsup in
 2 *In re Graphics Processing Units Antitrust Litig.* (“GPU”).⁶⁰ In *GPU*, Judge Alsup held that GPUs
 3 were “*not* fungible commodities.” And this conclusion drove many of his findings, including that
 4 individualized inquiry needed to be made into the pricing and product customization for any
 5 particular purchase (at the direct purchaser level), and that pass-through could only be measured by a
 6 “wholesaler-by-wholesaler and re-seller-by-re-seller investigation.”⁶¹ Here, ODDs are
 7 incontrovertibly a commodity product. Two international tribunals (the EU and the Taiwanese Fair
 8 Trade Commission) have so found.⁶² In addition, [REDACTED]

9 [REDACTED]
 10 [REDACTED]
 11 [REDACTED]
 12 [REDACTED] The operating specifications for ODDs are
 13 also set out by industry consortia – no such common specifications apply to software and hardware
 14 used with advanced features of GPUS. Flamm III, ¶ 8 n.1. Where there is a demonstrated
 15 commodity, with a competitive market functioning to drive prices down to marginal costs, there is no
 16 reason to suspect (and no economic study has demonstrated) that pockets of the market exist which
 17 would escape the expected pricing dynamics. And economic theory would predict in this
 18 commoditized market, that a systemic overcharge would be passed down to consumers. *Id.*, ¶ 10.

19 IV. CONCLUSION

20 For all of the reasons discussed above, IPPs respectfully request that this Court certify a class
 21 of indirect purchasers of ODDs – consumers in the United States who purchased personal computers
 22 containing a DVD-RW, DVD-ROM or COMBO drive – and a subclass of purchasers of Dell/HP
 23 computers containing the same drives.

24
 25
 26 ⁶⁰ *In re Graphics Processing Units Antitrust Litig.*, 253 F.R.D. 478, 491 (N.D. Cal. 2008).

27 ⁶¹ *Id.* at 505.

28 ⁶² See note 25, *supra*.

1 DATED: May 20, 2015

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ATTACHMENT A

PROPOSED INDIRECT PURCHASER CLASS REPRESENTATIVES

Plaintiff	State	ODD Products on Which Plaintiffs Base Their Claims (and ODD Manufacturer, if Available)
Brian Tindall	Arizona	HP Pavilion dv9700t Entertainment Notebook
Chris Johnson	California	HP Q500 TouchSmart computer (TSST) HP IQ506 TouchSmart computer (TSST)
Kristina Tecce	District of Columbia	HP Pavilion dv5t Entertainment notebook computer
Lisa Melegari	Florida	Compaq Presario SR1810NX Desktop PC COMBO Internal Drive (Lite-On) DVD-RW Internal Drive (Lite-On) Combo Internal Drive (Lite-On)
Barney Gooman, Jr.	Hawaii	HP Pavilion a6614f desktop computer (HLDS)
Benjamin Murray	Kansas	Dell XPS 1540 laptop computer (Optiarc) Dell XPS m1530 laptop computer (Optiarc)
Thomas Stenger	Maine	Dell Inspiron 530 desktop computer (Optiarc)
James Ito-Adler	Massachusetts	HP Pavilion dv6704nr laptop computer (HLDS)
Sandy Steffen	Michigan	Compaq Presario laptop computer (TSST)
Anbessa Tufa	Minnesota	HP Pavilion a6410t PC
Benjamin Faber	Missouri	Apple PowerBook g4 12-inch computer (Panasonic)

Plaintiff	State	ODD Products on Which Plaintiffs Base Their Claims (and ODD Manufacturer, if Available)
Matthew Hosking	Montana	HP Pavilion 300 desktop computer (HLDS)
Cindy Booze	Nebraska	Toshiba Satellite laptop computer (Pioneer)
Matthew Ence	Nevada	Toshiba Satellite L35-S2174 laptop computer (QSI) Toshiba Satellite L35-S2366 laptop computer (Panasonic) I/O Magic External USB DVD drive (LG)
Wanda Duryea	New Hampshire	HP Pavilion Notebook PC DV Compaq Presario CTO Notebook Toshiba Satellite 1800 Series 8X Laptop HP Pavilion Tower a1650e
Michael Reilly	New Mexico	Gateway MT6723 laptop computer (HLDS)
Susie Lim	New York	Apple iMac 20 inch, 2.4GHZ desktop computer (Pioneer)
Angela Pritchard	North Carolina	Acer Extensa laptop computer (HLDS) Dell Inspiron desktop computer (Optiarc)
Mike Bishop	Oregon	Apple iMac 24" desktop computer (Optiarc)
Kimberly Wood	Tennessee	Toshiba Satellite L355D-57901 laptop computer (Matshita/Panasonic)
Benjamin Porter	Utah	NEC 16x DVD±R/RW DVD Burner Dell Inspiron E1405 laptop computer (HLDS) Dell XPS M1330 laptop computer (Matshita)
Gail Murphy	Vermont	Apple iMac desktop computer (Optiarc) Apple iMac desktop computer (Matshita)
Brian Ice	West Virginia	eMachine W3502 desktop computer (TSST)

Plaintiff	State	ODD Products on Which Plaintiffs Base Their Claims (and ODD Manufacturer, if Available)
John McKee	Wisconsin	eMachine T3422 desktop computer (HLDS)